

Editorial: parasitic helminths in Latin America and the Caribbean

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(Received 13 November 2016; Accepted 16 January 2017)

This issue of the *Journal of Helminthology* includes a special topic dealing with six reviews on various aspects of parasitic helminths in Latin America and the Caribbean (LAC). The majority refer to helminths infecting aquatic hosts and range from fundamental questions to epidemiology and control challenges.

Helminth infections are highly prevalent over large areas of LAC, where they cause severe morbidity and seriously affect the efficiency of food production systems. As in other regions of the world, they are a hallmark of poverty and, furthermore, a major hindrance to development (Hotez *et al.*, 2008a, b; Budke *et al.*, 2009). In this scenario, parasitologists from LAC countries have been working for more than a century, together with colleagues from all over the world, to contribute to a better understanding of the biology of these organisms and the diseases they cause, and to develop new tools for their diagnosis, treatment and control (see, for example, Mascarini, 2003; Verjovski-Almeida *et al.*, 2003; Díaz *et al.*, 2011a, b; Gazzinelli *et al.*, 2012; Parkinson *et al.*, 2012; Silva *et al.*, 2012; Matoso *et al.*, 2013; Morel *et al.*, 2013; Sciutto *et al.*, 2013; Tsai *et al.*, 2013; Williams *et al.*, 2013; Cooper *et al.*, 2015; Oliveira & Pierce, 2015; García *et al.*, 2016; Koziol *et al.*, 2016; Peón *et al.*, 2016; McNulty *et al.*, 2017).

Along these lines is the article on fasciolosis by *Fasciola hepatica* in South America. José Tort and Carlos Carmona (Universidad de la República, Uruguay) review the epidemiology of helminth infection in livestock and other hosts, and efforts to develop a single-antigen recombinant vaccine for ruminants. They also examine the important issue of drug resistance, which is compromising current control strategies worldwide. The review by Lilia Soler-Jiménez *et al.* (Centro de Investigación y Estudios Avanzados, CINVESTAV, Mexico) also concerns parasites affecting food production, notably finfish. The authors highlight that, while aquaculture has tripled over the past 20 years in Latin America, it is currently facing the problem of helminth infections. Noting that aquaculture mainly uses exotic species, and that parasites were brought into the region together with their hosts, they

raise the point that the introduction of species for production purposes should be considered a breakdown in biosecurity, and be treated as such.

Two reviews analyse helminth diversity in different hosts. Leopoldina Aguirre-Macedo and colleagues (CINVESTAV, Mexico) review patterns of diversity in helminths infecting aquatic invertebrates in LAC. Given the availability of data, they focus on parasites affecting medically and economically important hosts (mainly snails, shrimps and crabs). Similarly, José Luis Luque (Universidade Federal Rural do Rio de Janeiro, Brazil) and colleagues analyse the diversity of helminth parasites from South American fishes. Both these articles emphasize the need of further studies to assess properly helminth diversity in the region.

The final two reviews focus on questions related to ecology and evolution. Victor Vidal-Martínez (CINVESTAV, Mexico) and Alison Wunderlich (University of London, UK) carried out a meta-analysis seeking evidence of a response of parasitic helminths to environmental damage and, therefore, whether helminths may be used as bioindicators of damage in the region. Interestingly, they found a low but significant indication of such a response and observed differences among parasite groups. Finally, Anindo Choudhury (St Norbert College, USA) together with Martín García-Varela and Gerardo Pérez-Ponce de León (CINVESTAV, Mexico) examined the extent to which adult helminths from freshwater fishes have been part of the Great American Biotic Interchange, finding that helminth interchange has been limited and asymmetrical.

Together, these reviews show that, in the LAC, helminthology is a thriving subject, with research directed at both important applied problems of the region and fundamental aspects of helminth ecology and evolution.

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